London Taught Course Centre

2010 Examination

C*-Algebras

Question

(a) Define a von Neumann algebra. Show that a von Neumann algebra must contain a non-zero projection which is not the identity. Define an abelian projection and a finite projection in a von Neumann algebra. Show that an abelian projection is always finite.

(b) Describe in details the Murray-von Neumann clssification of von Neumann algebras. Show that the classification is invariant under *-isomorphisms. Give an example of an infinite dimensional finite von Neumann algebra.

C-H Chu April 2010